REMARKS

Claims 1-21 were pending at the time of examination. Claims 1, 6-8, and 11-20 have been amended. No new matter has been added. The Applicants respectfully request reconsideration based on the foregoing amendments and these remarks.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 2, 4-5, 8, 9, 13, 16-17 and 20 were rejected under 35 U.S.C § 103(a) as being unpatentable over Peterson, "3D Studio MAX 2 Fundamentals" (hereinafter "Peterson") in view of U.S. Patent No. 6,342,892 to Van Hook et al.(hereinafter "Van Hook") further in view of U.S. Patent No. 6,322,448 to Kaku et al. (hereinafter "Kaku") yet still further in view of Foley et al., "Computer Graphics: Principles and Practice" (hereinafter "Foley"). The Applicants respectfully traverse these rejections.

The Examiner primarily relies on Peterson's motion blur as teaching the limitations of claim 1 relating to formation and position of the dummy object. The Applicants believe that any such interpretation is without support in the reference, but have amended claim 1 to further clarify the distinctions between the Applicants' invention and Peterson.

Claim 1, as amended, requires "receiving object data representing an object at a particular instance of a virtual time-space continuum." That is, the object data describes the object's appearance at a particular instance in time that can, for example, be rendered as a digital video frame on a display screen. Furthermore, claim 1 also specifies that the dummy object has an identical shape to the object, and that the dummy object is generated by duplicating the received object data. Lastly, claim 1 specifies that the drawing occurs "in a digital video frame representing said instance of said virtual time-space continuum." These amendments are intended to clarify that the object and the dummy object are generated from the same object data, which represents the object at a particular instance of the virtual time-space continuum, and that this instance can be represented in a digital video frame.

Peterson discusses 3D animation software, and in particular a method is described of how to make an animation appear more realistic by including motion blur. The techniques for generating the motion blur, however, do not teach the limitations of claim 1 for several reasons.

First, the "dummy objects" (or "copies") suggested by Peterson are created from different "instances" of the virtual space time-position continuum, to use the Applicants' terminology, rather than from the object data representing an object at a particular instance of a virtual time-space continuum. Peterson teaches the creation of a motion blur effect for an object by rendering, in a particular single frame, several other images of the object sampled at different times, for instance a frame (or sampling) before the time depicted in the rendered frame and/or a frame (or sampling) subsequent to the time rendered in the present frame. Thus, what is shown is a residual image (and perhaps a future image) in addition to the current image of the object. As should be clear from the above discussion, these copies do not meet the requisites of the dummy objects of claim 1, since the dummy objects are generated from object data for a particular instance in the virtual space time-position continuum.

More importantly, further review of the reference suggests that these are not even copies of the object as originally appearing in the frame. As noted in Peterson, animated object transforms and object deformations are reflected when performing object motion blur (page 455). The only way that these features can be depicted in Peterson's copies is by making them correspond to objects sampled at different times, i.e., different frames. Further, Peterson teaches that object motion blur can be used when the object is moving with a curvilinear trajectory (page 455; FIG. 16.10). Each of the foregoing characteristics suggests that Peterson's copies are just copies of the object in its position at a different time.

Kaku likewise fails to teach or suggest the limitations of claim 1. Kaku relates generally to an image processing device whereby in the display of the movement of models in virtual space, residual image presentation is applied to the models in order to represent the track of movement of the model as residual images. Actual and residual images are simultaneously displayed on the screen, the residual images processed to be semi-transparent, the degree of transparency increasing as the frames to which the residual images correspond to become more distant in time from the present frame (col. 22, line 58 to col. 3, line 1). This is similar to Peterson in that the residual images are merely copies of the object at different points in time for the object.

Van Hook was cited by the Examiner for its teachings as to hidden surface removal while Foley was cited for motivation to perform hidden surface removal.

Neither of these references teaches nor suggests the limitation discussed above with respect to claim 1. Thus for at least the foregoing reasons, applicants submit that the art of record fails to teach or suggest the limitations of claim 1.

Claims 2-5 all depend from claim 1, and are therefore not anticipated nor obvious for at least the reasons discussed above. Moreover, these dependent claims recite additional limitations, and are therefore allowable for these reasons as well. However, in light of the above distinctions in the independent claims, further discussion of the dependent claims is deemed unnecessary.

Claims 6 – 8, and 11-20 are independent claims, which are believed to be patentable over the art of record for reasons substantially similar to those set forth above with respect to claim 1.

Claims 9-10 depend from claim 8, and claim 21 depends from claim 20, and are therefore not anticipated nor obvious for at least the reasons discussed above. These dependent claims also recite additional limitations, and are therefore allowable for these reasons as well. However, in light of the above distinctions in the independent claims, further discussion of the dependent claims is deemed unnecessary.

Conclusion

The Applicants believe that none of the pending claims are anticipated by or obvious in view of the cited art and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 50-0388 (Order No. SIP1P044).

Respectfully submitted,
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